REMARKS

Reconsideration of this application is requested.

A page showing the changes made to the above-identified claims is attached hereto.

As a result of the foregoing amendments, a total of 54 claims remain in the present application. Original claims 11, 12, 31, and 32 have been amended. No new claims have been introduced. Original claims 1-10, 13-30 and 33-54 remain unchanged.

The foregoing amendments are presented in response to the Office Action mailed November 29, 2001, wherefor reconsideration is respectfully requested. Referring now to the text of the Office Action:

(a) claims 12 and 32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite;

(b) claims 1-2, 21-22 and 41-42 stand rejected under 35 U.S.C. § 102(b), as being anticipated by United States Patent No. 5,636,230 (Marturano et al.); and

(c) claims 3-20, 23-40, and 43-54 stand rejected under 35 U.S.C. § 103, as unpatentable over the teaching of Marturano et al. in view of United States Patent No. 6,201,971 (Purnadi et al.);

Such rejections are respectfully traversed, based on the claim amendments presented above, and further in view of the discussion below.

As an initial matter, the Applicant's representative thanks the Examiner for the courtesies extended during a telephone interview on February 28, 2002.

With respect to the Examiner's rejection under 35 U.S.C. § 112, second paragraph, claims 2 and 32 have been amended to clarify the wording thereof. In particular, the word "predetermined" has been deleted so that each of claims 12 and 32 now define that "the delay period is of random length", which is in agreement with the language of the specification (see

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page 16, lines 12-16) and which is readily achievable in practical embodiments of the invention. Claims 11 and 31 have been amended to ensure proper antecedent basis for amended claims 12 and 32, respectively.

The Examiner's assertion in paragraph 2 of the Detailed Action that "claims 12 and 32 will not be examined further" is not understood in light of the simplicity of the subject matter of claims 12 and 32, and the ease with which it can be implemented. It is believed that entry and consideration of amended claims 11, 12, 31 and 32 is proper, and such action is courteously solicited.

With respect to the Examiner's rejections under 35 U.S.C. § 102, the Examiner asserts that "Marturano et al. disclosed a base station (fig. 1) being adapted for communications with one or more wireless terminals (fig. 1) over a wireless link wherein the base station identify a poorly performing link and temporarily interrupting data transmission over the poorly performing wireless link (abstract)." In fact, Marturano et al. teach a wireless communication system in which a base station broadcasts data to one or more receivers. Upon reception of a data block from the base station, a receiver determines a corruption metric for that data block. If the corruption metric indicates that the received data block has been inadequately received, then the receiver transmits a "resend" message (NACK) to the base station to cause the base station to retransmit the affected data block. As noted by Marturano et al. (see column 1), this type of operation is well known in the prior art, and suffers the disadvantage that, if the quality of a wireless link between the base station and the involved receiver is poor, the receiver may repeatedly determine that the data packet has been inadequately received and repeatedly transmit the resend message. This can create indefinite delays in the transmission of further data packets, while the base station repeatedly retransmits the first inadequately received packet.

In order to overcome this difficulty, Marturano et al. teach a system in which each receiver counts the number of NACK messages sent to the base station, and imposes a maximum limit on the number of times that the receiver will request retransmission of a data packet. As can clearly be seen in Figure 1 of the Marturano patent, when the counter reaches its maximum limit value, the sending of a further NACK message is disabled; the resend counter is reset; and the

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receiver receives the next data block. In effect, the corrupted data block is accepted (or possibly dropped) by the receiver, so that the next data block can be transmitted by the base station to thereby minimize transmission delays of further data packets.

Thus the skilled artisan will immediately recognize that Marturano et al. do not teach or suggest the suspension of communications through a poorly performing wireless link, as suggested by the Examiner. In fact, Marturano et al. teach exactly the opposite, by teaching that the transmission of resend request messages to the base station (which is, as is well known in the art, the only means by which the base station can be informed that data has not been properly received by the receiver) is disabled, to permit the next data packet to be transmitted by the base station and so prevent a suspension of communications.

In view of the foregoing, it is submitted that Marturano et al. fail to teach any of the elements of the invention as defined in original claims 1, 21 and 41, and therefore cannot support the Examiner's rejection under 35 U.S.C. § 102(b). Accordingly, it is believed that the Examiner's rejection of claims 1-2, 21-22, and 41-42 under 35 U.S.C. § 102(b) should properly be withdrawn, and such action is courteously solicited.

With respect to the Examiner's rejections under 35 U.S.C. § 103, the Applicants note that Marturano et al. teach directly away from the present invention as described above. It is submitted that Purnadi et al. fail to supply the missing teaching required to support an obviousness rejection under 35 U.S.C. § 103.

Purnadi et al. teach a radio communications system which facilitates a controlled degradation of quality of service (QoS) level parameters during a communications session, if a desired QoS level parameter cannot be maintained. Thus, as shown in Figure 7, a desired QoS level is stored at the beginning of a communications session, and the availability of resources for satisfying the requested QoS level determined. If the requested QoS level can be fulfilled, the communications session proceeds on the basis of the requested QoS. On the other hand, if the requested QoS level cannot be fulfilled, then a "degraded" QoS level that can be fulfilled is selected, and the communications session continues on the basis of the degraded QoS level. By

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this means, the QoS level can degrade gracefully during the course of a communications session, and the abrupt suspension or dropping of the session is thereby avoided.

As described above, Purnadi et al. teach a system which allocates sufficient resources to maintain a desired QoS level when such resources are available, and otherwise allocates such resources as may be available to maximize the QoS level of the communications session. As such, Purnadi et al. teach a system that will attempt to maintain communications through severely degraded wireless links which, as described at pages 2-4 of the present application, can have the effect of sacrificing data throughput on all other links in an effort to maintain marginal data throughput on the poorly performing link(s). As such, Purnadi et al. is merely an example of precisely the prior art over which the present invention is clearly distinguished.

With respect to claims 3, 23 and 43, the Examiner argues that "it would have been obvious to one of ordinary skill in the art to implement such QoS level parameters as discussed in Purnadi et al. are based on the performance parameters of the wireless link of Marturano et al., in order to provide a managed and non-abrupt service degradation of QoS level parameters during a communications session." Without commenting on the validity of the Examiner's assertion, neither Purnadi et al. nor Marturano et al., taken alone or in combination, teach or suggest that data transmission over a poorly performing wireless link is at least temporarily interrupted, as defined in base claims 1, 21 and 41 of the present application.

With reference to claims 4, 24 and 44, Applicants note that both Marturano et al. and Purnadi et al. disclose that various parameters may be used as a gauge of data corruption and/or QoS performance. However, neither of the cited references, alone or in combination, teach or suggest the feature of at least temporarily interrupting data communication through the wireless link based on the value of any such performance parameters.

With reference to claims 5, 25 and 45, the Examiner asserts that "Marturano et al. further disclosed an average is taken for at least one of the performance parameters." However, this assertion directly contradicts the portion of the specification (column 4, lines 55-61) cited by the Examiner. In particular, this passage states that "the transmission media reliability can change for a given receiving data unit. For example, a mobile data terminal may be in a moving vehicle

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that is approaching the transmitting data unit, in which case the average signal strength and, hence, the reliability of the communication channel, increases over the duration of the data message transmission. In such a case, the resend requests may be re-enabled, as described below." While this passage does indicate that an average of a performance parameter may change, it does not in any way support the Examiner's contention that Marturano et al. calculates any such average value, or utilizes same for any purpose other than the subsequent re-enablement of resend request messages.

With reference to claims 6, 14, 26, 34, 46 and 50, Marturano et al. do not teach or suggest "suspending transmission of a data frame over the poorly performing wireless link", as asserted by the Examiner. As discussed above, Marturano et al. teach a system in which a resend counter is incremented when a data block has been inadequately received. If the resend counter does not exceed a counter limit value, a resend request is transmitted. If the resend counter exceeds the counter limit value, transmission of subsequent resend requests is disabled. Such a method provides enhanced efficiency when broadcasting data messages to multiple receivers, as taught by Marturano. Thus, Marturano et al. teach that the transmission of resend request messages is suspended, specifically in order to prevent interruption of the transmission of subsequent data blocks. The skilled artisan will therefore immediately recognize that Marturano et al. do not, in fact, teach or suggest suspending transmission of a data frame, as asserted by the Examiner.

With respect to claims 7, 8, 15, 16, 27, 28, 35 and 36, Applicants note that Marturano et al. do not teach or suggest the resumption of transmission of a data frame after a delay, which may be of random length, as asserted by the Examiner. In fact, Marturano et al. teach that transmission of resend messages may be suspended for a predetermined period of time (see Figure 3, Reference Nos. 313 and 314), which "could correspond to the average fading decorrelation time in a mobile RF environment." (See column 5, lines 17-23.)

With respect to claims 9, 10, 17, 18, 29, 30, 37, 38, 47, 48, 51 and 52, the Examiner's assertions with respect to the teachings of Marturano et al. are not understood. In particular, the Examiner references column 3, lines 6-19, and asserts that this passage discloses maintaining a count of suspended frames and suspending transmission if the count of suspended frames exceeds

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a predetermined threshold. However, a careful review of the specification and drawings of Marturano et al. by the Applicants has failed to reveal any support for the Examiner's contention. The passage referenced by the Examiner (column 3, lines 6-19) provides examples by which a block may be deemed inadequately received. In a first example, a number of bit errors in a data block can be counted and compared to a predetermined threshold (column 3, lines 9-11). In a second example, the received signal strength can be monitored and compared to a predetermined threshold (column 3, lines 11-16). In a third example, a signal-to-noise ratio is measured over a data block and compared to a threshold (column 3, lines 16-19). Presumably, other measures may be used for this purpose. However, Marturano et al. do not teach that data frames are suspended; do not teach maintaining a count of any such suspended frames; and do not teach suspending transmission if the count of suspended frames exceeds a predetermined threshold.

With respect to claims 19, 20, 39, 40, 53 and 54, the relationship between the Examiner's comments and the claims in question is not understood. As described above, Purnadi et al. discloses a system in which resources are allocated to maintain the highest possible QoS level on a wireless link consistent with a QoS requirement of a communications session and the availability of sufficient resources. This arrangement enables for a controlled service degradation of a poorly performing wireless link, rather than an abrupt dropping of that link. However, this teaching is entirely unrelated to the steps of predicting whether a QoS performance parameter is likely to violate a corresponding QoS requirement of a communications session before any such violation actually occurs, and preemptively dropping a data frame or otherwise suspending data transmission over that link, as defined in claims 19, 20, 39, 40, 53 and 54.

In light of the foregoing, it is submitted that the presently claimed invention is clearly and unambiguously distinguishable over the teachings of the cited references. Accordingly, it is believed that the present application is in condition for allowance, and early action in that respect is now courteously solicited.

If any extension of time under 37 C.F.R. § 1,136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS:

Claim 11 (Amended)

A method as claimed in claim 10, further comprising restarting the session after a ~~predetermined~~ delay period.

Claim 12 (Amended)

A method as claimed in claim 11, wherein the ~~predetermined~~ delay ~~is a~~ period is of random length.

Claim 31 (Amended)

A network as claimed in claim 30, further comprising means for restarting the session after a ~~predetermined~~ delay period.

Claim 32 (Amended)

A network as claimed in claim 31, wherein the ~~predetermined~~ delay ~~is a~~ period is of random length.

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